PATENT



IN THE CLAIMS:

Please cancel claims 4, and 28-32.

Please amend claims 1, 9, 23, 26, 27, and 33-35 as follows.

1. **(once amended)** An isolated nucleic acid that encodes a fusion polypeptide, wherein the fusion polypeptide comprises:

a) a catalytic domain of a glycosyltransferase that catalyzes the transfer of a saccharide, from a saccharide donor comprising a nucleotide sugar, to an acceptor molecule; and

b) a catalytic domain of an accessory enzyme that catalyzes the formation of the nucleotide sugar.

9. **(once amended)** The nucleic acid of claim 1, wherein the accessory enzyme is selected from the group consisting of:

a GDP-mannose dehydratase;

a GDP-mannose 3,5-epimerase;

a GDP-mannose 4-reductase;

a UDP-glucose 4' epimerase;

a UDP-GalNAc 4' epimerase;

a CMP-sialic acid synthetase;

a neuraminic acid aldolase;

an *N*-acetylglucosamine 2' epimerase;

a phosphate kinase selected from the group consisting of a pyruvate kinase, a myokinase, a creatine phosphate kinase, an acetyl phosphate kinase, and a polyphosphate kinase; and

a pyrophosphorylase selected from the group consisting of a UDP-Glc pyrophosphorylase, a UDP-Gal pyrophosphorylase, a UDP-GalNAc pyrophosphorylase, a GDP-mannose pyrophosphorylase, a GDP-fucose pyrophosphorylase, and a UDP-GlcNAc pyrophosphorylase.

23. **(once amended)** The nucleic acid of claim 1, wherein the catalytic domain of the glycosyltransferase and the catalytic domain of the accessory enzyme are joined by a peptide linker.

**26. (once amended)** An expression vector which comprises the nucleic acid of claim 1.

**27. (once amended)** A host cell which comprises the expression vector of claim 26.

**33. (once amended)** A method of producing a fusion polypeptide, the method comprising:

**a)** introducing into a host cell the expression vector of claim 26, under conditions where the host cell is transformed with the expression vector; and

**b)** culturing the transformed host cell under conditions where the fusion polypeptide is expressed in the transformed host cell.

**34. (once amended)** The method of claim 33 further comprising a step of purifying the expressed fusion polypeptide.

**35. (once amended)** The method of claim 33 further comprising a step of permeabilizing the host cell expressing the fusion polypeptide.

Please add new claim 36.

**36. (newly added)** The nucleic acid of claim 1, wherein the accessory enzyme is a pyrophosphorylase.

## REMARKS

Claims 1-35 are pending in the present application. In this response, claims 1, 9, 23, 26, 27, and 33-35 are amended to more clearly define the claimed invention; claim 4 is cancelled to expedite prosecution; and claims 28-32 are cancelled because, in the parent application, the Examiner withdrew the claims from consideration as allegedly being drawn to a non-elected invention. Claim 36 is added as a new claim.

Specifically, claim 1 is amended to recite an "isolated" nucleic acid encoding a fusion protein comprising a) a catalytic domain of a glycosyltransferase "that catalyzes the transfer of a saccharide, from a saccharide donor comprising a nucleotide sugar, to an